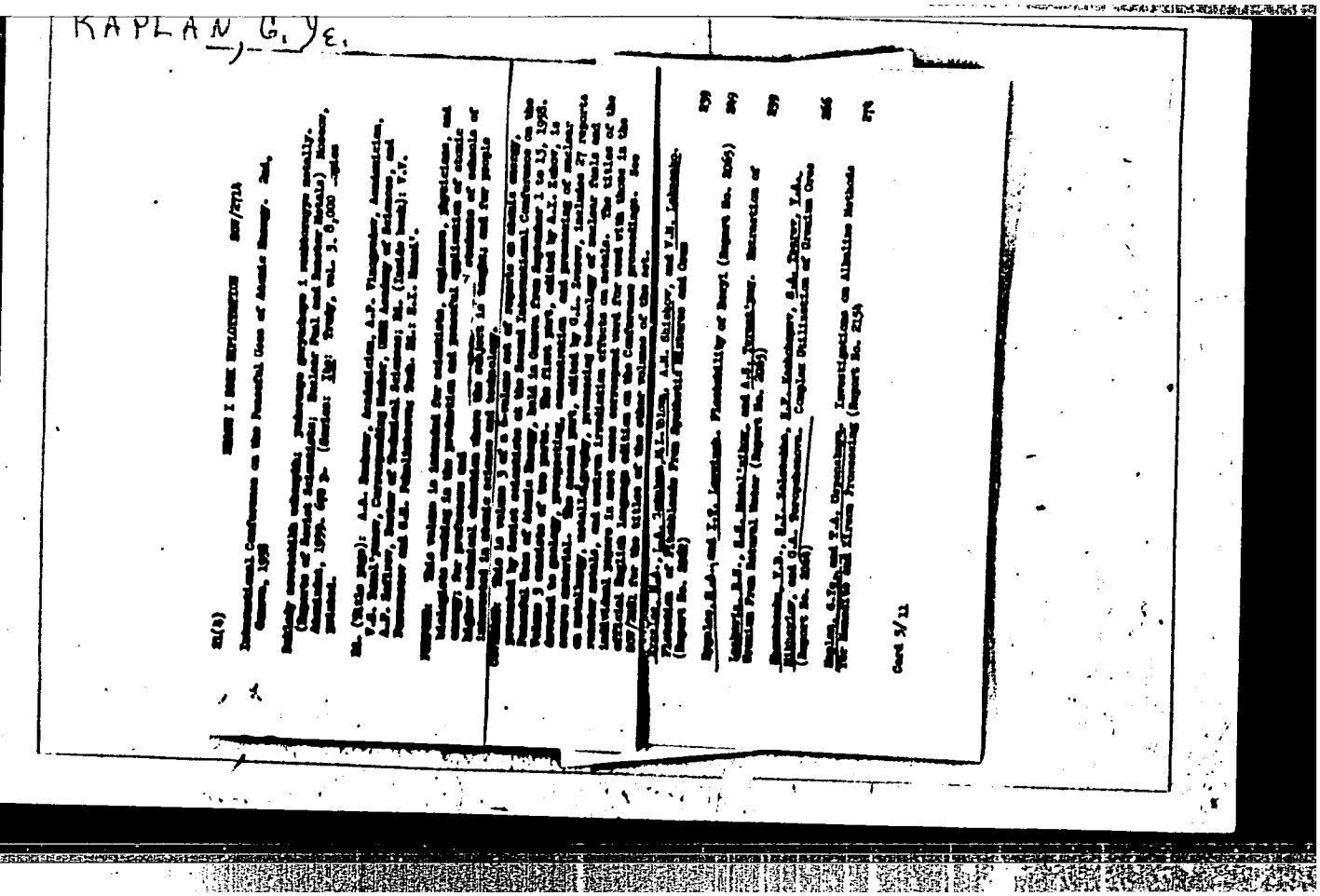
AUTHORS: Kaplan, G. Ya., Zarembo, Yu. I., Uspenskaya, T. A. SOV/89-5-2-8/36

TITLE: The Present Stage of the Production and Consumption of Thorium (Sovremennoye sostoyaniye proizvodstva i potrebleniya toriya)

PERIODICAL: Atomnaya energiya, 1958, Vol. 5, Nr 2, pp. 147-154 (USSR)

ABSTRACT: On the basis of foreign publications the perspectives offering themselves for thorium in atomic industry are discussed. Within the last few years a number of plants was established in the USA, India, Brazil and other countries, which work thorium-containing ores. The separation of thorium and rare earths from monazite was carried out mainly by means of the alkaline processes. The extraction process is applied for the production of pure thorium compounds. Metallic thorium is obtained by the thermal as well as by the electrolytical method, namely from chlorine-fluorine or pure fluorine baths. Compact metallic thorium is obtained by means of the powder-metallurgical method or by the melting method. There are 40 references, 13 of which are Soviet.

Card 1/2



21(1), 11(6)

AUTHORS: Kaplan, G. Ye., Laskorin, B. N., Nevskiy, B. V.

SOV/89-6-2-1/28

TITLE: Industrial Methods of Low-Grade Uranium Ore Refinement (Promyshlennyye metody pererabotki bednykh uranovykh rud)

PERIODICAL: Atomnaya energiya, 1959, Vol 6, Nr 2, pp 113 - 123 (USSR)

ABSTRACT: This paper gives a survey of 28 English Geneva Reports dealing with the technical problems and industrial reprocessing of uraniferous ores. The extraction of uranium from uranium solutions by sorption at synthetic resins is being widely used at present, and 70% of all uranium is now obtained by this method. Uranium extraction by liquid extracting agents is less applied. The usual mechanical enrichment methods, such as gravitation, flotation, etc., are of secondary importance. However, this method regains importance in connection with the possibility of complex ore refinement. Radiometric enrichment is a very modern method, wherein the radioactive properties of uraniferous minerals are used for separating them from barren rock. There are 4 figures and 28 references.

Card 1/2

PHASE I BOOK EXPLOITATION SOV/5017

Kaplan, G. Ye., T. A. Ospenskaya, Yu. I. Zarembo, and I. V. Chirkov

Toriy, yego syr'yevyye resursy, khimiya i tekhnologiya (Thorium, Its Raw Material Resources, Chemistry and Technology) Moscow, Atomizdat, 1960. 223 p. Errata slip inserted. 4,000 copies printed.

Ed.: Ye. I. Panasenkova; Tech. Ed.: N. A. Vlasova.

PURPOSE: This book is intended for chemists, physicists, and researchers in the field of atomic energy.

COVERAGE: This is a review of Soviet and other literature on thorium published in the past 15-20 years. The material contains data on the main characteristics of thorium geochemistry and mineralogy and on the current raw material base of thorium outside the Soviet Union. It covers the physicochemical, corrosion-resisting, and radioactive properties of thorium, including its fields of application. The production technology for commercial and technically pure thorium is described along with its basic compounds and alloys. Brief information on the analytical chemistry of thorium is also included. The problems concerning the fuel cycle

Card 1/5

Thorium, Its Raw Material Resources (Cont.) SOV/5017

schemes for U^{233}, the properties of irradiated thorium, and its processing technology will be dealt with in another book. Ch. II. was written by I. V. Chirkov, and the other chapters by G. Ye. Kaplan, Yu. I. Zarembo, and T. A. Uspenskaya. References accompany each chapter.

TABLE OF CONTENTS:

Card 2/5

KAPLAN, G.Ye.

Present state of the metallurgy of rare earth metals and their use in industry. Met. i metalloved. chist. met. no. 2:280-318 '60. (MIRA 13:12)

(Rare earth metals)

CHIRKOV, I.V.; KAPLAN, G.Ye; USPENSKAYA, T.A.; NEVSKIX, V.A., nauchnyy red. [illegible] I.I., red. izd-va; BORISOV, A.S., tekhn. red.

[Industry's requirements as to the quality of mineral raw materials; handbook for geologists] Trebovaniia promyshlennosti k kachestvu mineral'nogo syr'ia; spravochnik dlia geologov. Izd.2., perer. Moskva, Gosgeoltekhizdat. No.72. [Thorium] Torii. Nauch. red. V.A.Nevskii. 1961. 82 p. (MIRA 15:6)

1. Russia (1923- U.S.S.R.) Ministerstvo geologii i okhrany nedr. (Thorium)

S/136/61/000/006/001/003
E021/E435

AUTHORS: Kaplan, G.Ye., Uspenskaya, T.D. and Pryanishnikova, T.V.

TITLE: Study of the Process of Decomposition of Zircon by Roasting With Lime

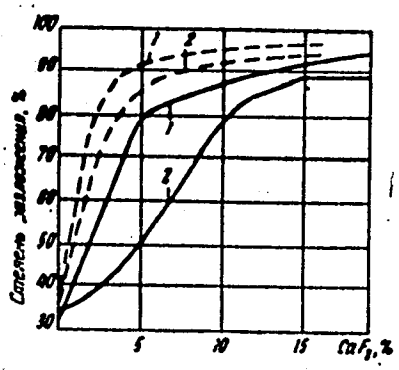
PERIODICAL: Tsvetnyye metally. 1961, No.6, pp.59-61

TEXT: At the Second International Atomic Energy Conference (Geneva, 1958) the authors reported on the possibility of improving the recovery of rare metals, including Zr, by increasing the surface area of the ores and concentrates and addition of activating fluoride compounds. In this paper more detailed information is given relating to roasting Zr concentrates. Experiments were carried out to try to decrease the temperature of roasting and to increase the efficiency. The effect of grinding the concentrate and additions of fluoride compounds was studied. The concentrate used contained about 90% zircon, with less than 1 to 1.5% iron and titanium oxides and about 2.5% alumina. Grinding was carried out on a three litre steel ball mill. Charges of 50 to 500 g were heated in a laboratory muffle furnace. The quantity of fluorides added varied from 5 to 50 wt.% of the original concentrate. The degree of decomposition was measured by

the zirconium content in the residue after treatment with weak hydrochloric and afterwards sulphuric acid. Experiments were carried out with 1.75 parts by weight of calcium carbonate and 1 part by weight of concentrate. Fig.1 shows the effect of additions of CaF_2 (continuous curves) and Na_2SiF_6 (discontinuous curves) on the degree of decomposition, % (curve 1, 900°C; curve 2, 800°C). The maximum recovery is obtained at 900°C by an addition of 20% CaF_2 or 15% Na_2SiF_6. Fig.2 shows curves of degree of decomposition against the CaF_2 or Na_2SiF_6 content at 900°C, curve 1 being with a mean grain size of 1 μ and curve 2 0.1 mm. The degree of recovery is 99% with 10% Na_2SiF_6 and 97% with 15% CaF_2 when the concentrate has a grain size of 1 μ. The method of mixing the charge was also shown to have an effect on the degree of recovery. Fig.3 shows the degree of decomposition against temperature. Curve 1 is after mixing in a vibratory-mill and curve 2 after mixing by hand. The former gives 10 to 20% higher recovery because of more uniform distribution of the components. There are 3 figures and 6 references: 5 Soviet and 1 non-Soviet. The reference to English language publication reads

as follows: Br.Pat.Nos.287424 and 282023 (1928).

Fig.1.



Card 3/4

S/080/62/035/006/005/013
D204/D307

AUTHORS: Kaplan, G. Ye., Uspenskaya, T. A. and Epshteyn, A.L.

TITLE: A study of the decomposition of monazite by sintering with calcium oxide

PERIODICAL: Zhurnal prikladnoy khimii, v. 35, no. 6, 1962, 1217-1222

TEXT: This is a continuation of earlier work, aimed at confirming that ultrafinely ground monazite concentrate may be decomposed with CaO at comparatively low temperatures. The grinding was carried out by a continuous, wet process, using a vibrating mill M-10 (M-10), constructed by VNIITISM. The effects of time and temperature, nature and quantity of fluoride activators added and the degree of grinding were studied. Preliminary experiments showed the specific surface area of monazite to be the dominant factor. Detailed studies showed that practically 100% decompositions could be achieved on material with a specific surface area of 12,000 cm^2/g (~1 μ particles), with 7 - 10% of NaF added. Under the same con-

Card 1/2

A study of the ... S/080/62/035/006/005/013
D204/D307

ditions CaF_2 gave only ~87 - 89% extraction of ThO_2 and R_2O_3 (R = rare earth). Concentrate of the same specific surface area and containing 10% NaF was wholly decomposed at 1000°C but only at 1100°C when NaF was replaced by CaF_2. The same concentrate was fully decomposed after ~4 hrs at 1000°C if the product was leached out with a solvent containing HF. Thermographic analyses were carried out during the sintering to clarify the processes taking place. At lower temperatures the curves of CaO, monazite + CaO and monazite + CaO + NaF were very similar. At ~1000°C an exothermic reaction took place in mixtures of monazite, CaO and NaF or CaF_2, which was ascribed to the decomposition reaction of monazite. There are 11 figures.

SUBMITTED: May 15, 1961

Card 2/2

S/080/62/035/005/007/015
D204/D307

AUTHORS: Kaplan, G. Ye., Mukhantseva, V. V., Filatkin, A. P., Andrushkevich, K. A. and Dushechkina, A. I.

TITLE: Electrolysis of lithium sulphate solutions using a mercury cathode

PERIODICAL: Zhurnal prikladnoy khimii, v. 35, no. 5, 1962, 1043-1048

TEXT: The authors wished to determine the possibility of producing LiOH by the electrolysis of aq. Li_2SO_4. The process was conducted with a Pt anode, and a stream of Hg passing through the cell served as the cathode. The Hg/Li amalgam formed was collected and analyzed - the Li content was kept below 0.05%, and was generally $\leqslant$ 0.01%, to avoid the formation of a solid phase. The optimum conditions for the process were found to be: 200 - 300 g Li_2SO_4/l of electrolyte, cathode current density 1500 - 2000 amp/m^2 (the latter value gave a current efficiency of 99.9% with 300 g Li_2SO_4/l),

Card 1/2

temperature 15 - 20°C, pH 3 - 6. Presence of Fe, Cr, Mn, Ca, Na, K and Al ions (separately) in the electrolyte at a concentration of 0.02 g/l, lowered the current efficiency η to 90 - 95%, while the same quantity of Mg decreased η to 47%. Simultaneous presence of the above impurities, in a total amount of 0.02 g/l, lowered η to 87%. Higher concentrations of these metals (0.2 - 0.4 g/l) gave current efficiencies of 62.0 - 43.0%. LiOH obtained from electrolytes containing the above ions contained only a trace of Na and K. There are 5 figures and 1 table.

SUBMITTED: January 27, 1961

S/828/62/000/000/001/017
E039/E420

AUTHORS: Kaplan, G.Ya., Yagodin, G.A., Moiseyev, S.D., Dmitriyeva, L.P., Mostovaya, O.A., Chekmarev, A.M., Sevost'yanova, E.N., Udovenko, V.F.

TITLE: The separation of zirconium and hafnium by means of organophosphorous compounds, amines and other extraction agents

SOURCE: Razdeleniye blizkikh po svoystvam redkikh metallov. Mezhvuz. konfer. po metodam razdel. blizkikh po svoyst. red. metallov. Moscow, Metallurgizdat, 1962, 28-41

TEXT: Although large separation coefficients can be obtained by the use of mixed nitric and hydrochloric acids the process is not favoured because of corrosion difficulties and the large quantity of acids required. The results of experiments on the extraction of these elements from a sulphuric acid medium in the presence of different extraction agents is therefore examined. It is shown that diisoamyl-ether-methylphosphonium acid $(i\,C_5H_{11}O)_2POCH_3$ (DAMPA) is a more powerful complex forming agent than

Card 1/2

tributylphosphate (TBP). The separation and distribution coefficients for Zr and Hf are 24.6 and 3.2 respectively when using 10% DAMPA in H_2SO_4 solution in the presence of thio-cyanic acid, while for 40% TBP in the same medium the corresponding coefficients are 21.6 and 2.6. An increase in the concentration of TBP is undesirable as it leads to increased viscosity and a large loss of extraction agent. It should be noted however that the re-extraction of DAMPA is more difficult than for TBP. Diphenylphosphoric acid extracts Zr and Hf from H_2SO_4 solution with a separation coefficient 3 to 10. Other extraction agents of this type are also tested. Tests are also made on the use of tri-n-octylamine and in this case as the concentration of H_2SO_4 is increased the separation coefficient for Zr and Hf passes through a maximum value of 12 at about 1 normal H_2SO_4 and then falls to a steady value of about 10 for further increase in the H_2SO_4 concentration. Details are given of the constitution of the organic and aqueous phases and the effect of acidity on the separation coefficient. There are 11 figures and 3 tables.

Card 2/2

S/828/62/000/000/003/017
E039/E420

AUTHORS: Laskorin, B.N., Kaplan, G.Ye., Arzhatkin, A.M.

TITLE: A continuous countercurrent method of separating zirconium and hafnium

SOURCE: Razdeleniye blizkikh po svoystvam redkikh metallov. Mezhvuz. konfer. po metodam razdel. blizkikh po svoyst. red. metallov. Moscow, Metallurgizdat, 1962, 48-50

TEXT: This method utilizes chromatographic separation operated continuously by arranging for the resin packing in the column to move countercurrent to the zirconium-hafnium solution. The column is 400 mm inner diameter and the height of the resin ion exchange layer can be varied from 50 to 200 cm. The initial solution is zirconium and hafnium fluorosulphate with a normal concentration of zirconium and hafnium oxides ~65 g/litre. Ratios of Zr:Hf used are 100:1 and 1:1. Satisfactory separation of Zr and Hf was obtained using ion resin KУ-2 (KU-2) standard coarseness (20 to 50 mesh). The solution is fed into the middle of the column and flows upwards while the resin particles move downwards. Hf is absorbed more strongly in the lower part of the column and Zr in the upper part. As the resin

Card 1/2

A continuous countercurrent ... S/828/62/000/000/003/017
E039/E420

passes down the column it goes through a regenerating solution of ~ 8% H_2SO_4 and is then transferred to the top of the column through an external tube by means of an airlift. The solution discharged from the top of the column contains zirconium with less than 0.03% Hf while the solution from the lower part of the column contains hafnium with up to 1% of Zr. This apparatus produces a significantly higher output than the discontinuous chromatographic process. There is 1 figure.

Card 2/2

S/828/62/000/000/006/017
E039/E420

AUTHORS: Laskorin, B.N., Kaplan, G.Ye., Uspenskaya, T.A., Barushkova, R.I.

TITLE: The extraction and separation of tantalum and niobium from hydrofluoric acid - trioctylamine solutions

SOURCE: Razdeleniye blizkikh po svoystvam redkikh metallov. Mezhvuz. konfer. po metodam razdel. blizkikh po svoyst. red. metallov. Moscow, Metallurgizdat, 1962, 71-78

TEXT: Ta and Nb are extracted from a hydrofluoric acid solution containing Ta_2O_5 and Nb_2O_5 by means of tri-octylamine [TOA - $(C_8H_7)_3N$]. The extraction is carried out in a separating funnel using mechanical stirring. After separating the phases the Ta and Nb content in each is determined radiometrically by counting the activity of the radioactive isotopes (Ta^{182} and Nb^{95}) which were introduced into the initial solution before extraction. A chemical analysis was also made and good agreement obtained. Maximum extraction of Nb in the organic phase is attained with a contact time of 3 minutes and for Ta in 1 to 2 minutes; hence in all later experiments contact times of 3 to 5 minutes were used.

Card 1/2

The extraction and separation ... S/828/62/000/000/006/017
E039/E420

A high separation coefficient ≈ 400 is obtained for concentration $\Sigma(Ta,Nb)_2O_5 = 200$ g/litre with $Ta_2O_5/Nb_2O_5 \approx 1$. The effect of the type of diluent on the extraction is also investigated. In the case of kerosene a third phase is formed which can be eliminated by the use of decyl or octyl alcohol. The re-extraction of Ta and Nb is examined and it is shown that Nb is extracted by (a) 7% HCl, (b) 6 to 10% HNO_3, (c) 14% NH_4Cl and (d) 25% NH_3 solution. Ta is extracted only by concentrated HNO_3 (600 to 800 g/litre) and 25% NH_3 solution. By a combination of extraction and re-extraction it is possible to obtain an almost complete separation of Ta and Nb from HF solution. There are 4 figures.

Card 2/2

KAPLAN, G.Ye.; USPENSKAYA, T.A.; EPSHTEYN, A.L.

Decomposition of monazite by sintering with calcium oxide.
Zhur.prikl.khim. 35 no.6:1217-1222 Je '62. (MIRA 15:7)
(Monazite) (Calcium oxide)

KAPLAN, G.Ye. MUKHANTSEVA, V.V., PILIPKIN, [illegible] ANDRUSHKEVICH, K.A. DUSHECHKINA, [illegible]

Electrolysis of lithium sulfate solutions with the use of a mercury cathode. Zhur.prikl.khim. 35 no.5:1043-1048 My '62. (MIRA 15:5)

(Lithium sulfate) (Electrolysis) (Electrodes, Mercury)

SURAZHSKIY, D.Ya.; KAPLAN, G.Ye.; NEVSKIY, V.N.; CHIRKOV, I.V.

"Studies of rare earths from the point of view of economic geology" by B.I. Kogan. Reviewed by D.IA. Surazhskii and others. Geol.rud.mestorozh. no.5:103-104 S-O '62. (MIRA 15:12)
(Rare earths) (Kogan, B.I.)

S/830/62/000/001/005/012
E193/E383

AUTHORS: Kaplan, G.Ye., Moiseyev, Ye.D., Dmitriyeva, L.P. and Kostochkina, S.A.

TITLE: Separation of zirconium and hafnium by [solvent] extraction

SOURCE: Ekstraktsiya; teoriya, primeneniye, apparatura. Ed. by A. P. Zefirov and M. N. Senyavin. Moscow. Gosatomizdat, 1962. 117 - 123

TEXT: The first part of the paper is concerned with the application of tributyl phosphate as a reagent in a solvent-extraction process used for selective recovery of hafnium and zirconium from Zr-rich solutions. Various standard methods of decomposition of zirconia concentrates are reviewed and the most convenient ways of converting the composition products to solutions suitable for processing by solvent extraction are discussed. It is shown that the main difficulties associated with the application of tributyl phosphate for separating Hf and Zr are associated with difficulties encountered in the preparation of nitric-acid solutions free from silicon, fluorine and sulphate

Card 1/4

Separation of S/830/62/000/001/005/012
E193/E383

ions. The only original experimental evidence quoted in this connection relates to the effect of fluorine on the extraction of Zr from nitric-acid solutions: it is shown that in the case of solutions obtained from fluorine compounds of Zr and Hf, solvent extraction can be effectively used only if the fluorine/zirconium molar content ratio does not exceed unity. The use of organic agents such as diethyl ester, methyl isobutyl ketone, etc. for separating Hf from Cr in H_2SO_4 solutions is briefly discussed; the main shortcoming of this method is the difficulty in re-generating ammonia thiocyanate. Since liquid ionic-exchange reagents can also be used for extraction from H_2SO_4 solutions and since data on the separation of Hf and Zr by this method are scarce, a series of experiments were conducted in which 5% xylol solutions of several cationic reagents were used to extract Hf and Zr from a 2N H_2SO_4 solution with 20 g/l. Zr. The results are reproduced in Table 1. The disadvantage of this method is a tendency to the formation of emulsions and insoluble residues. The last paragraphs of the paper describe experiments in which the possibility of using amines for extraction of Zr from H_2SO_4

Card 2/4

Separation of ....

S/830/62/000/001/005/012
E193/E383

solutions was studied. A xylol solution of tri-octylamine was used for this purpose. Recovery of Zr in the organic phase depended on both acidity of the solution and concentration of the amine in its solvent. When a 20% solution of amine was used in a 2N H_2SO_4 solution, the distribution coefficient in respect of Zr was 1.4, the corresponding figure for an 0.7N solution being 5.5. The distribution coefficients attained with a 10% solution of amine, used for treating 0.7N, 2N and 4N H_2SO_4 solutions were, respectively, 0.67, 0.42 and 0.31. It is concluded that application of amines and phosphoric acid esters offer a possible method of separating Hf and Zr in H_2SO_4 solutions. There are 4 figures and 1 table.

Card 3/4

Separation of S/830/62/000/001/005/012
E193/E383

Table 1:

Extraction characteristics of some organic phosphorus-base acids with cation-exchange properties

Extracting agent	D_{Hf}	D_{Zr}
$(C_6H_{13}O)_2POOH$	0.22	0.02
$(C_7H_{15}O)_2POOH$	0.35	0.03
$(C_8H_{17}O)_2POOH$	0.21	0.03

Card 4/4

KAPLAN, G.Ye.; MOISEYEV, S.D.; GAVRILIN, V.M.; SEMENOV, G.I.; VOROTILIN, V.P.

Separation of thorium from rare earths by tributyl phosphate extraction. Ekstr.; teor.,prim.,app. no.2:154-159 '62. (MIRA 15:9)

(Thorium) (Rare earths) (Butyl phosphate)

AM4036550 BOOK EXPLOITATION S/

Kaplan, Grigoriy YEremeyevich; Silina, Galina Fedorovna; Ostrousiko, YUriy Ivanovich

Electrolysis in the metallurgy of rare earth metals (Elektrolis v metallurgii redkikh metallov), Moscow, Metallurgizdat, 1963, 360 p. illus., biblio, Errata slip inserted. 2,500 copies printed.

TOPIC TAGS: rare metal, electrolysis, rare earth metal, lithium, rubidium, cesium, uranium, tantalum, columbium, zirconium, thorium, beryllium

PURPOSE AND COVERAGE: The book covers work on obtaining pure rare metals and their electrolysis. The theory and practice of obtaining waterless salts of the rare metals and the electrolysis of melts with a liquid cathode (lithium, rubidium, cesium, uranium, and rare-earth metals), with a solid cathode (tantalum, columbium, zirconium, thorium, uranium, and beryllium) are covered in the book. The electrolytic process of obtaining alloys of rare metals is described. The book is intended for a broad audience of engineers and technicians in the metallurgical, metal working, and chemical industries and can also be useful to students in higher educational institutions.

TABLE OF CONTENTS [abridged]:

Card 1/2

S/080/63/036/001/009/026
D204/D307

AUTHORS: Kaplan, G. Ye., Machinskiy, A.V., Yakubovich, I.A., Uspenskaya, T.A. and Pryanishnikova, T.V.

TITLE: The effect of superfine grinding on solid phase reactions

PERIODICAL: Zhurnal prikladnoy khimii, v. 36, no. 1, 1963, 95 - 101

TEXT: A brief review of solid phase reactions is first given, concluding that sintering processes occur as a result of mass exchange in the solid and particularly in the liquid and gaseous phases. Vibration and jet grinders are considered to be most effective. To study the sintering reactions of some ore concentrates the authors used superfine grinding to ensure a large reactive area, and further ground the fines together to ensure maximum intermixing. The grain size was of the order of 1 μ. Such treatment allows the reactions to go almost to completion at temperatures considerably below the usual temperature used for such

Card 1/2

Card 2/2

L 17432-63 EPF(n)-2/EWP(q)/EWT(m)/EDS AFFTC/ASD/SSD Pu-4 WW/JD/JG

ACCESSION NR: AP3004353 S/0078/63/008/008/1973/1979

AUTHORS: Yagodin, G. A.; Kaplan, G. Ye.; Mochovaya, O. A.; Moiseyev, S. D.; Dmitriyeva, L. P. 68

TITLE: Effect of fluoride and chloride ions upon the extraction of zirconium and hafnium from nitrate solutions 21

SOURCE: Zhurnal neorganicheskoy khimii, v. 8, no. 8, 1963, 1973-1979

TOPIC TAGS: fluoride ion, chloride ion, zirconium, hafnium, nitrate solution, methyl phosphinic acid, tributyl phosphate

ABSTRACT: Authors studied the extraction of zirconium and hafnium from nitric acid solutions in the presence of fluoride and chloride ions. Zirconium concentration was determined gravimetrically. Hafnium concentration was determined radiometrically with Beta-radiation. The solvents used as extractants were tributylphosphate and di-iso-amyl ether of methyl phosphinic acid. It was shown that the addition of fluoride to a certain concentration increases the transfer of metal into the organic phase and then decreases it. It was also shown that ZrF^{3+} complex extracts best in the Zr : F : NO_3 ratio of 1 : 1 : 1. When extract-

Card 1/2

L 17432-63

ACCESSION NR: AP3004335

ing zirconium oxychloride from the saturated solutions in HCl with tributylphosphate and di-iso-amyl ether of methyl phosphinic acid the ratio of the extracted composition is Zr : Cl = 1 : 2. Extraction from mixed nitric-hydrochloric acid solutions is better than in the case of individual nitric or hydrochloric acid solutions. An analysis of the organic phase was performed to determine the composition of zirconium, chloride, nitrogen and hydrogen. The ratio between zirconium and the anions was 1 : 2. Apparently this is partially explained by the hydrolysis of zirconium at a low acid concentration (less than 4 N) in the organic phase. The hydrolyzed zirconium is in the form $ZrO(NO_3)_2$. Orig. art. has: 4 tables and 7 figures.

ASSOCIATION: none

SUBMITTED: 28May62 DATE ACQ: 21Aug63 ENCL: 00

SUB CODE: CH NO REF SOV: 005 OTHER: 001

Card 2/2

L 36702-65 EPF(n)-2/EPR/EWT(m)/EWG(m)/EWP(b)/EWP(t) Pc-4/Pe [illegible] JW/JG

ACCESSION NR: AP5005016 S/0078/65/010/002/0507/0511

AUTHOR: Baram, I. I.; Kaplan, G. Ye.; Laskorin, B. N.

TITLE: The mechanism of extracting tantalum and niobium with tri-n-butylphos-

SOURCE: Zhurnal neorganicheskoy khimii, v. 10, no. 2, 1965, 507-511

TOPIC TAGS: tantalum extraction, niobium extraction, tributylphosphate, tantalum tributylphosphate complex, [illegible]

ABSTRACT: The mechanism of extraction of Nb and Ta in the system [illegible] mol HF + 4 mol H_2SO_4-tributylphosphate (TBP) was studied by the isomolar series method and by the shift of equilibrium. The first method established that Nb was extracted by TBP as the tri-solvate $H_2NbF_7 \cdot 3TBP$ or $HNbF_6 \cdot 2TBP$, and Ta was extracted as the di-solvate $H_2TaF_7 \cdot 2TBP$ or $HTaF_6 \cdot 2TBP$. The second method confirmed the trisolvate formation with Nb, but indicated that Ta formed the solvates $H_2TaF_7 \cdot 3TBP$ and $H_2TaF_7 \cdot 4TBP$. Thus at high concentrations, the tantalum complex is solved with 2 molecules of TBP, but at lower concentrations the

Card 1/2

L 30702-65

ACCESSION NR: AP5005016

0

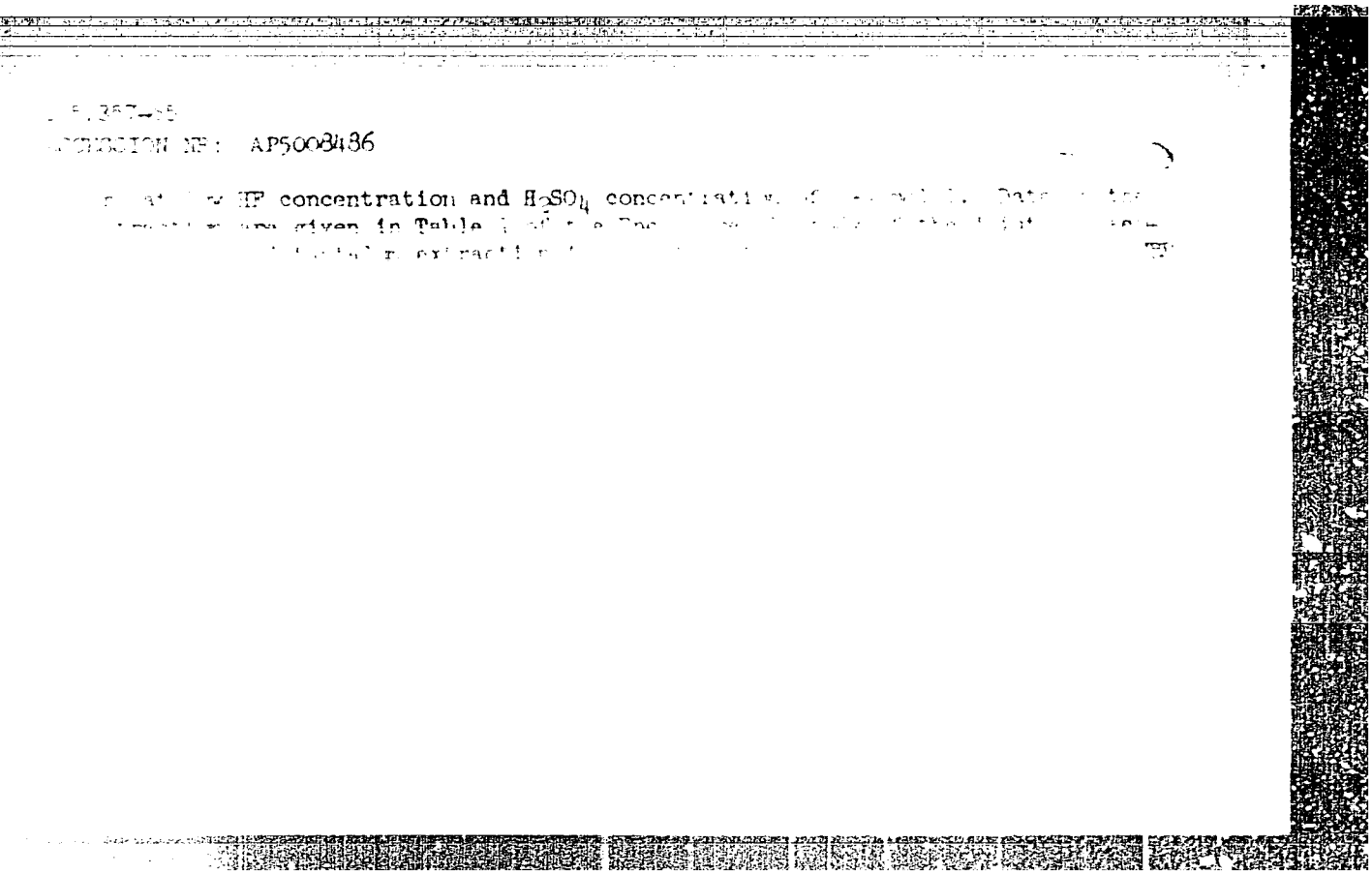
number of TBP solvate molecules increased to 3 and 4. Orig. art. has: 3 figures, 2 tables and 8 equations

ASSOCIATION: None

SUBMITTED: 03Aug63 ENCL: 00 SUB CODE: GC

NO REF SOV: 005 OTHER: 001

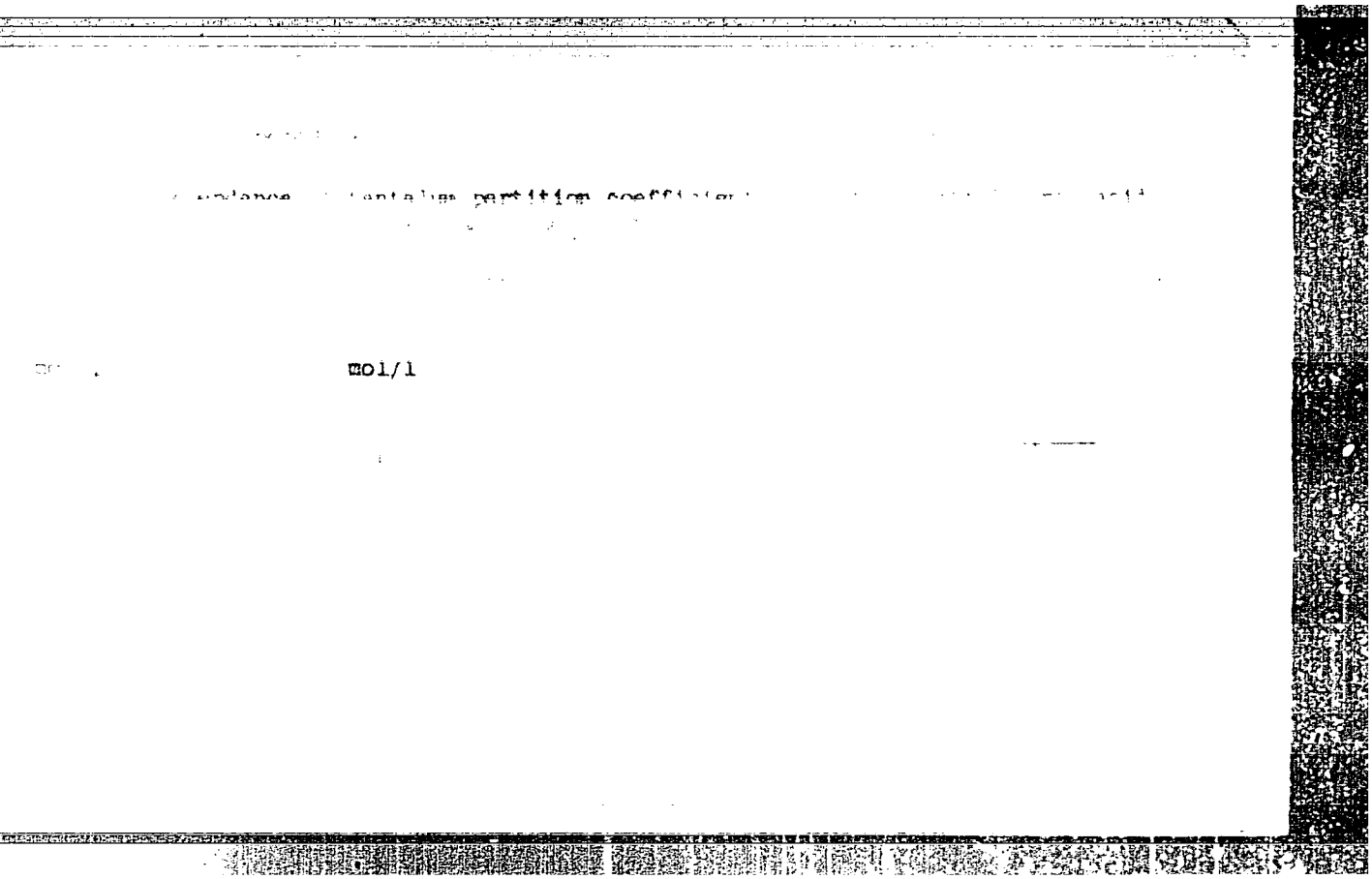
ABSTRACT: Extraction of niobium in the presence of tantalum has been studied with respect to initial concentration of hydrofluoric and sulfuric acids, in an HF - H_2SO_4 - TBP system to determine the optimum extraction conditions of the elements with greater accuracy. The results show that: 1) in the presence of tantalum maximum extraction of niobium (~97%) occurs in the system 2.5 mol HF + 4 mol H_2SO_4 + TBP and the greatest increase in Nb partition coefficients occurs at HF concentra-
[illegible] tantalum extraction [illegible] HF
[illegible] partition coefficients are [illegible] of
[illegible], respectively; and [illegible] extraction



AP5003436

IF concentration and H_2SO_4 concentration

given in Table



KAPLAN, I., starshiy nauchnyy sotrudnik, kand.istorich.nauk

Documents give an account.... Sov.shakht. 12 no.12:33 D '63.
(MIRA 17:3)

KAPLAN, I.

Questionnaire study of reasons for labor turnover in industries of regional economic councils. Biul.nauch. inform.: trud i zar. plata 4 no.4:33-39 '61. (MIRA 14:6)
(Labor mobility)

SLEPYAN, YA.; KAPLAN, I.(Minsk)

Characteristics of the high-frequency channel of the "Minsk" radio receiver. Radio no.3:26-28 Mr '60. (MIRA 13:6)
(Radio--Receivers and reception)

KAPLAN, I.

Coordinating work on the study of losses in working time due to personnel turnover. Biul.nauch.inform.: trud i zar.plata 3 no.9:49-50 '60. (MIRA 13:9)
(Labor turnover)

KAPLAN, I.

Personnel turnover in enterprises and how to eliminate it.
Vop. ekon. no.10:45-54 O '63. (MIRA 16:12)

14(5) SOV/112-59-1-1401

Translation from: Referativnyy zhurnal. Elektrotekhnika, 1959, Nr 1, p 193 (USSR)

AUTHOR: Bondarenko, V. G., Faynberg, G. S., and Kaplan, I. A.

TITLE: Device for Remote Checking of the Tension of Hoist Ropes

PERIODICAL: Shakhtnoye str-vo, 1958, Nr 2, pp 28-29

ABSTRACT: A description and data on the DKK-20 device are supplied; the device includes a differential inductive primary element and an AC measuring bridge. The device continuously checks on rope tension and disengages the hoist mechanism when the tension rises above permissible. The device, however, does not stop the hoist mechanism when the object being lowered sticks or when the rope is slack. Three illustrations.

M.R.S.

Card 1/1

14(8);14(11)

AUTHORS: Bondarenko, V. G., Kaplan, I. A., Fedorenko, V. G., ~~Engineers~~

SOV/119-59-1-15/20

TITLE: Device to Control the Tension of Cables (Pribor dlya kontrolya natyazheniya kanatov)

PERIODICAL: Priborostroyeniye, 1959, Nr 1, pp 27-28 (USSR)

ABSTRACT: The Vsesoyuznyy nauchno-issledovatel'skiy institut organizatsii i mekhanizatsii shakhtnogo stroitel'stva (All-Union Scientific Research Institute for the Organization and Mechanization of Mining) developed, constructed and tested the testing device DKK -20. The cable to be controlled runs over 2 fixed rolls and a load roll to receive the tension component of the cable. This load roll runs inside a tube and is connected with a ferromagnetic nucleus which is mobile in two cylindrical coils. A bridge circuit consisting of 2 inductances (the two mentioned coils) and apart from this 2 variable inductances is in equilibrium if there is no tension in the cable. There is therefore no current in the diagonals of the bridge. If there is a tension in the cable the nucleus of the first coil moves into the second. Thus a change of induction in the coils is caused,

Card 1/2

the bridge loses the state of equilibrium and a microammeter records the difference between the zero position and the new position with the extent of the shift of the nucleus being proportional to the tension in the cable. The scale of the microammeter is calibrated in tons. The device covers two ranges, e.i. from 0-10 and from 0-20 t. It can be used for cable diameters from 19 to 30 mm. By electrical measuring it is possible to measure the tension in the cable also at distant points of the cable. A special device permits an interruption of the movement of the cable at the moment where the desired tension is exceeded. The accuracy of measurement of the device is in the range of 3-5%. There are 4 figures.

KAPLAN, Il'ya Abramovich; BAZHENOV, G.M., prof., doktor fiz.-matem.nauk, retsenzent; POLOVIN, R.V., dotsent, kand.fiz.-matem.nauk, retsenzent; GORDEVSKIY, D.Z., dotsent, otv.red.; BAZILYANSKAYA, I.L., red.; TROFIMENKO, A.S., tekhred.

[Practical problems in higher mathematics] Prakticheskie zaniatiia po vysshei matematike. Khar'kov, Izd-vo Khar'kovskogo gos. univ. im. A.M.Gor'kogo. Pt.1. [Plane and solid analytic geometry] Analiticheskaia geometriia na ploskosti i v prostranstve. 1960. 226 p. (MIRA 14:3)

(Geometry, Analytic)

KAPLAN, Il'ya Abramovich; NIKOMENKO, A.L., otv. red.; VAZILYANSKAYA, I.L., red.; TROFIMENKO, A.S., tekhn. red.

[Practical studies in the numerical solution of algebraic equations; textbook for students of higher technical schools] Prakticheskie zaniatiia po chislennomu resheniiu algebraicheskikh uravnenii; posobie dlia studentov vysshikh tekhnicheskikh uchebnykh zavedenii. Khar'kov, Izd-vo Khar'kovskogo univ., 1962. 54 p. (MIRA 15:10)
(Algebra) (Equations--Numerical solutions)

KAPLAN, Il'ya Abramovich; SOLODOVNIKOV, R.V., dots., otv. red.; BAZILYANSKAYA, I.L., red.

[Practical studies in higher mathematics] Prakticheskie zaniatiia po vysshei matematike. Khar'kov, Izd-vo Khar'kovskogo gos. univ. im. A.M.Gor'kogo. Pt.2. [Differential calculus of functions of one variable and several variables] Differentsial'noe ischislenie funktsii odnoi i mnogikh nezavisimykh peremennykh. 1963. 369 p. (MIRA 17:4)

KAPLAN, Il'ya Abramovich; BAZHENOV, G.M., doktor fiz.-matem. nauk, prof., retsenzent; GORDEYEVSKIY, D.Z., dots., otv. red.; SOLODOVNIKOV, R.V., dots., otv. red.; BAZILYANSKAYA, I.L., red.

[Practical studies in higher mathematics; analytical geometry, plane and solid; differential calculus of functions of one and several independent variables] Prakticheskie zaniatiia po vysshei matematike; analiticheskaia geometriia na ploskosti i v prostranstve, differentsial'noe ischislenie funktsii odnoi i mnogikh nezavisimykh peremennykh. Izd.2., dop. i perer. Khar'kov, Izd-vo Khar'kovskogo univ., 1965. 574 p. (MIRA 18:3)

SMELYANETS, S.G., inzh.; KAPLAN, I.A., inzh.; FAYNBERG, G.S., inzh.; TULUB, P.I., inzh.

Industrial testing of the ONK-10 equipment. Shakht. stroi. 9 no.7:27-28 Jl '65. (MIRA 18:10)

1. Vsesoyuznyy nauchno-issledovatel'skiy institut organizatsii i mekhanizatsii shakhtnogo stroitel'stva.

FUKS, Boris Abramovich, prof.; BAKHSHIYAN, F.A., prof.; ANDRIYEVSKIY, F.P., dotsent; MIROSHKOV, R.K., dotsent; NAGAYEVA, V.M., dotsent; SOBOLEV, N.A., dotsent; SOKOLOV, A.M., dotsent; SHAPIRO, Z.Ya., dotsent; SHUSHARA, G.N., dotsent; KAPLAN, I.B., starshiy prepodavatel'; POLOZKOV, A.P., starshiy prepodavatel'; POLOZKOV, D.P., starshiy prepodavatel'; TOPAZOV, N.G., starshiy prepodavatel'; SHCHERBAKOV, S.S., starshiy prepodavatel'; Prinimali uchastiye: GOL'DENVEYZER, A.L., prof.; BARANENKOV, G.S., dotsent; BERMAN, Ya.R., dotsent; LUNTS, G.L., dotsent; SHESTAKOV, A.A., dotsent; GMURMAN, V.Ye., starshiy prepodavatel'; Rozental', M.I., assistent; SOKOLOVA, L.A., assistent. ROZANOVA, G.K., red.izd-va; KUZ'MINA, N.S., tekhn.red. (Continued on next card)

FUKS, Boris Abramovich--(continued) Card 2.
[Higher mathematics; methodological instructions and control assignments for the students of correspondence technical schools of university level] Vysshaia matematika; metodicheskie ukazaniia i kontrol'nye zadaniia dlia studentov zaochnykh vysshikh tekhnicheskikh uchebnykh zavedenii. Izd.9. Pod red. B.A.Fuksa. Moskva, Gos.izd-vo "Sovetskaia nauka," 1958. 179 p. (MIRA 12:9)
1. Russia (1923- U.S.S.R.) Ministerstvo vysshego obrazovaniya. Metodicheskoye upravleniye.
(Mathematics--Study and teaching)

86181

S/140/60/000/005/008/021
C111/C222

16.4000

AUTHOR: Kaplan, I.B.

TITLE: On Cesaro Means of Variable Order

PERIODICAL: Izvestiya vysshikh uchebnykh zavedeniy. Matematika, 1960, No. 5, pp. 62 - 73

TEXT: Let $u_0 + u_1 + \dots$ be a series with partial sums s_n. Let

$$(1.1)\quad C_n^{\delta} = \frac{s_n^{\delta}}{\binom{\delta + n}{n}}$$

be the Cesaro mean, where

$$(1.2)\quad s_n^{\delta} = \sum_{k=0}^{n} \binom{\delta + n - k - 1}{n - k} s_k \ .$$

Let $\{\delta_n\}$, $\delta_n > -1$ be a sequence of real numbers. To every δ_n there

Card 1/3

On Cesaro Means of Variable Order

S/140/60/000/005/008/021
C111/C222

there correspond certain values $s_n^{\delta_n}$ and $c_n^{\delta_n}$ defined by (1.2) and (1.1), where $\delta = \delta_n$. If $c_n^{\delta_n} \to s$ $(n \to \infty)$, then $u_0 + u_1 + \ldots$ is (C, δ_n)-summable with respect to s : $s_n \to s(C, \delta_n)$. The (C, δ)-summability is a special case, where $\delta_n = \delta > -1$ $(n = 0, 1 \ldots)$.

Theorem 1 : The conditions

(I) $$\varliminf_{n \to \infty} n^{\delta_n - \delta} > 0$$

and

(II) $$\delta_n = \mathcal{O}(n)$$

are necessary and sufficient that from $s_n \to s$ (C, δ) there always follows $s_n \to s(C, \delta_n)$, where s is finite and $\delta > -1$.

Theorem 2 : The conditions : $\delta_n \geq \delta > -1$ for all $n > n_1$ and (II) of theorem 1 are necessary and sufficient that from $s_n \to s(C, \delta)$ there always follows

86181

On Cesaro Means of Variable Order

S/140/60/000/005/008/021
C111/C222

$s_n \to s(C, \delta_n)$ (for finite and infinite s).

Theorem 3 : If $-1 < a \leq \delta_n < \delta \leq a + 1$, then from $s_n \to s(C, \delta_n)$ there always follows $s_n \to s(C, \delta)$ (for finite as well as for infinite s).

By an example it is shown that the assumption of theorem 3 cannot be replaced by the weaker assumption $-1 < a \leq \delta_n \leq \delta$.

Several conclusions are given, e.g.: The method (C, δ_n), where $-1 < \delta_n \leq \delta$, $\delta_n \to \delta$ and $\lim_{n\to\infty} n^{\delta_n - \delta} = 0$, is stronger than the method (C, δ') for every δ', $-1 < \delta' < \delta$, and it is weaker than the method (C, δ).

The author mentions D.Ye. Men'shov. There are 2 non-Soviet references.

ASSOCIATION: Tsentral'nyy zaochnyy institut rybnoy promyshlennosti
(Central Correspondence Institute of the Fish Industry)

SUBMITTED: October 20, 1958

Card 3/3

KAPLAN, I.B., mayor meditsinskoy sluzhby

Diagnosis of epidural and subdural hemorrhages in acutely closed cerebro-cranial trauma. Voen.-med. zhur. no.6:20-22 '64. (MIRA 18:5)

KAPLAN, I.G.; PANTELEYEV, I.N.

Mechanization of the row placement of organic-mineral fertilizers. Zemledelie 24 no.3:73-76 Mr '62. (MIRA 15:3)

1. Gor'kovskaya gosudarstvennaya sel'skokhozyaystvennaya opytnaya stantsiya.
(Fertilizers and manures)

KAPLAN, I.D.

Determining the degree of mechanization of production. Kozh.-obuv.prom. no.7:4-7 Jl '59. (MIRA 12:11)
(Leather industry)

KAPLAN, I.G.

Diamagnetism of a system of interacting particles. Zhur. eksp. i teor. fiz. 39 no.4:1053-1055 O '60. (MIRA 13:11)

1. Institut khimicheskoy fiziki Akademii nauk SSSR.
(Diamagnetism) (Particles (Nuclear physics))

KAPLAN, I.G.

Coordinate fractional parentage coefficients for a configuration consisting of several shells. Zhur.eksp.i teor.fiz. 41 no.3:790-799 S '61. (MIRA 14:10)

1. Institut khimicheskoy fiziki AN SSSR.
(Quantum theory)

KAPLAN, I. G.

Dissertation defended for the degree of Candidate of Physicomathematical Sciences at the Physics Institute imeni P. N. Lebedev in 1962:

"Use of Group Theory Method in Calculating Systems of Identical Particles."

Vest. Akad. Nauk SSSR. No. 4, Moscow, 1963, pages 119-145

ACCESSION NR: AT4041514 S/2910/63/003/01-/0227/0233

AUTHOR: Kaplan, I. G.

TITLE: Application of fractional parentage coefficients to the computation of molecular terms

SOURCE: AN LitSSR. Litovskiy fizicheskiy sbornik, v. 3, no. 1-2, 1963, 227-233

TOPIC TAGS: molecular term, molecular term calculation, fractional parentage coefficient, quantum mechanics, wave function, spin function, coordinate wave function, Heitler London approximation, Young operator

ABSTRACT: In the quantum computation of chemical bonds, all properties of the system are defined by the coordinate wave function whose combination with the spin function satisfies the anti-symmetry conditions as given by Fock (ZhTEF, 10,961, 1940). These conditions are satisfied by symmetrization of the coordinate function according to Young's scheme using Weyl's procedure. This, however, does not allow a compact computation of the interaction operator matrix elements, which is usually accomplished by the decomposition of the wave function of an N-particle system into the wave functions of an (N-2)-particle system and two separate one-particle functions. It is thus required that the symmetrization of the coordinate wave function be conducted with the help of Young's operator. The method was previously develop-

1/2

Card

ACCESSION NR: AT4041514

ed by the author for a system of particles in a central field (ZhTEF, 41,560,1961, and 41,790,1961) and is now generalized for a field with arbitrary symmetry. A coordinate wave function of an N-particle system in Heitler-London approximation is constructed with the help of the Young operator. Linear combinations of such functions, belonging to the irreducible representation of the molecular point symmetry group, have been found by the use of projection operators of this point symmetry group. The expansion of the N-particle wave function into the product of the (N-2)-particle function and the function of the remaining two particles permits one to express the matrix elements of the operator G in terms of two-particle matrix elements and fractional parentage coefficients. An example for a four particle system is worked out. The tables of the fractional parentage coefficients for all possible symmetries of the system with N = 3 to 6 were computed by the author but not published. Orig. art. has: 21 equations.

ASSOCIATION: Fiziko-khimicheskiy institut im. L. Ye. Karpova (Physico-Chemical institute)

SUBMITTED: 00 ENCL: 00

SUB CODE: NP NO REF SOV: 010 OTHER: 010

2/2

Card

S/056/63/044/001/063/067
B102/B186

AUTHOR: Kaplan, I. G.

TITLE: Calculation of the energy matrix of a system of identical particles being in a state with given spin

PERIODICAL: Zhurnal eksperimental'noy i teoreticheskoy fiziki, v. 44, no. 1, 1963, 382 - 383

TEXT: The author continues previous investigations (ZhETF, 41, 560, 790, 1961) on the identical-particle matrices. In the present "Letter to the Editor" the author points out that he has tabulated all the transformation matrices of the permutation group necessary for calculating the matrix elements of two-shell configurations, for all possible symmetries and for 3-6 particles (Kaplan, Tablitsy transformatsionnykh matrits gruppy perestanovok, vkhodyashchikh v koordinatnyye genealogicheskiye koeffitsienty - Tables of the transformation matrices of the permutation group for the genealogical coordination coefficients - Rotaprint 1962). The tables contain also the permutation group matrices for the elements of the two-particle interaction operator Q for a system in a field of arbitrary

Card 1/2

symmetry if angular-momentum conservation is violated. Some details concerning the calculation of the matrix elements of G are dealt with.

ASSOCIATION: Fiziko-khimicheskikh institut im. L. Ya. Karpova (Physico-chemical Institute imeni L. Ya. Karpov)

SUBMITTED: August 3, 1962

KAPLAN, I.G.

Calculation of molecular systems by the method of coordinate wave functions. Part 1: Plotting of wave functions. Teoret. i eksper. khim. 1 no. 5:608-618 S-O '65 (MIRA 19:1)

Calculation of molecular systems by the method of coordinate wave functions. Part 2: Calculation of the energy matrix. Ibid.:619-632.

1. Filial fiziko-khimicheskogo instituta imeni Karpova, Obninsk. Submitted July 1, 1965.

L 4399-66 EWT(m)/EPF(c)/EPF(n)-2 GG

ACCESSION NR: AP5025866 UR/0020/65/164/004/0842/0845

AUTHOR: Kaplan, I. G.

TITLE: Distribution of energy of ionizing radiation in molecular mixtures

SOURCE: AN SSSR. Doklady, v. 164, no. 4, 1965, 842-845

TOPIC TAGS: ionizing irradiation, ionization phenomenon, electron energy, excitation energy, gamma ray

ABSTRACT: The phenomena of absorption and transfer of energy during irradiation of chemical substances by ionizing radiation are discussed. From the reported theoretical and experimental data, it is concluded that of the total number of primary elementary ionization events occurring during irradiation of a system with fast electrons or Co^{60} gamma rays, about 50% are induced by fast electrons if $dN(E)$ designates the number of elementary events produced by electrons with an energy in the range of $E+dE$. Then, after a steady-state distribution has been established, the following equality is approximately fulfilled:

$$\int_0^{E=100\ ev} dN(E) \approx \int_{E=100\ ev}^{E_0} dN(E),$$

Card 1/2

L 4399-66

ACCESSION NR: AP5025866

3

where E_0 designates the maximum energy of the electron beam. The estimates given are qualitative, but the contribution of fast electrons to the total number of elementary events will always be substantial. "In conclusion, I wish to thank V. L. Karpov and V. L. Tal'roze for a useful discussion." Orig. art. has: 2 tables, 3 formulas. [14]

ASSOCIATION: Fiziko-khimicheskiy institut im. L. Ya. Karpova (Physicochemical Institute)

SUBMITTED: 20Feb65 ENCL: 00 SUB CODE: NP, GC

NO REF SOV: 005 OTHER: 021 ATD PRESS: 4126

Card 2/2

L 13008-66 EWT(m)/EWP(j) RM
ACC NR: AP6001634 SOURCE CODE: UR/0051/65/019/006/0856/0863

AUTHOR: Kaplan, I. G.; Markin, A. P.

ORG: none

TITLE: Calculation of cross sections for excitation of molecular levels during collision with fast electrons and the rule for additive atomic stopping powers

SOURCE: Optika i spektroskopiya, v. 19, no. 6, 1965, 856-863

TOPIC TAGS: excitation cross section, electron, ~~atomic physics, mathematic model~~ computer calculation, molecule, chemical bonding

ABSTRACT: An expression is derived for the averaged excitation cross section of a definite molecular level in the Born approximation and by using the method of molecular orbitals. A BESM-2 computer was programmed for calculating the excitation cross sections for π-electron levels of the benzene molecule within the framework of the metallic model. The results are tabulated. These data are compared with the excitation cross sections computed according to the additive hypothesis, as well as with experimental data in the literature. The results do not support the hypothesis of unusually large cross sections for absorptions of energy by π-electrons. The

Card 1/2

UDC: 539.196.5.001.1

L 13008-66
ACC NR: AP6001634

effect which chemical bonding has on the atomic stopping power may apparently be disregarded within a wide energy range up to incident particle velocities slightly greater than the velocity of molecular electrons. At lower velocities, chemical bonding must be taken into consideration. In conclusion we consider it our pleasant duty to thank I. I. Sobel'man for useful consultation. Orig. art. has: 3 tables, 24 formulas.

SUB CODE: 20/ SUBM DATE: 24Sep64/ ORIG REF: 004/ OTH REF: 018

Card 2/2

L 08171-67 EWT(1) IJP(c) AT

ACC NR: AP6024877 SOURCE CODE: UR/0056/66/051/001/0169/0176

AUTHOR: Kaplan, I. G.: 37 B

ORG: Physicochemical Institute im. L. Ya. Karpov (Fiziko-khimicheskiy institut)

TITLE: Method of finding allowed multiplets in calculations of many-electron systems

SOURCE: Zhuranal eksperimental'noy i teoreticheskoy fiziki, v. 51, no. 1, 1966, 169-176

TOPIC TAGS: multiplet splitting, group theory, electron structure

ABSTRACT: A method is proposed for finding allowed multiplets of a many-electron system in the case when complete account is taken of the interaction between the configurations (in the Heitler-London scheme this corresponds to account of both covalent and all possible ionic structures). The method is based on the connection between the permutation group and the point group of the molecule, and requires for its application only knowledge of the tables of the characters of the irreducible representation, which can be found in many books on group theory. The application of the method is separately described for covalent structures and for ionic structures. Once the characters of the reducible representations are found, the expansion into irreducible representations follows the standard procedure and yields the allowed multiplets. The application of the procedure to the determination of the allowed multiplets of a

Card 1/2

L 08171-67

ACC NR: AP6024877 O

ring of six atoms is presented as an illustration and yields 268 allowed multiplets of the ring of the six hydrogen atoms. Orig. art. has: 5 figures, 5 formulas, and 2 tables.

SUB CODE: 20/ SUBM DATE: 28Dec65/ ORIG REF: 008/ OTH REF: 001/

Card 2/2 nst

KAPLAN, I.

KAPLAN, I. Pervootkryvatel' Donbassa Grigorii Kapustin. Moskva, Ugletekhizdat, 1949. 33 p. DLC: Unclass.

SO: LC, Soviet Geography, Part I, 1951, Uncl.

KAPLAN, I. I. PA 40/49T93

USSR/Mining Jan 49
Coal
Bibliography

"New Documents on Coal Mining in the Donbas Field," I. I. Kaplan, 1½ pp

"Ugol'" No 1

Documents recently discovered at the Central State Archives on Old Legislation reveal some details concerning Donbas coal mining operations in the 18th century.

[redacted] 40/49T93

KAPLAN, I.I.

21741 KAPLAN, I.I. Pervoot[k]ryvatel' kuzbassa mikhail volkov. Ugol', 1949, No. 7, S. 33-35.

SO: Letopis 'Zhurnal 'nykh Statey, No. 29, Moskva, 1949

KAPLAN, I. I.

25737. Kak bylI Otkryty Ugli v Kiselevskom Basseyne. Ugol', 1949, No. 8, s. 35-37.

SO: Letopis' Zhurnal'nykh Statey, Vol. 34, Moskva, 1949

KAPLAN, I.I.

Nikolai Aleksandrovich L'vov (on the 150th anniversary of his death).
Ugol' 29 no.11:42-43 '54. (MLRA 7:11)
(L'vov, Nikolai Aleksandrovich, 1751-1803)

KAPLAN, I.I.

Socialist competition in Donets Basin coal mines during the fifth five-year plan. Vop.truda no.1:67-89 '58. (MIRA 12:8)
(Donets Basin--Coal mines and mining)
(Socialist competition)

KAPLAN, Isaak Isaakovich; MAKSIMOV, Aleksey L'vovich; BOGATYRENKO, [illegible], red.; SAVCHENKO, Ye.V., tekhn.red.

[Transition of U.S.S.R. industry to a shorter working day] Perekhod na sokrashchennyi rabochii den' v promyshlennosti SSSR. Moskva, Izd-vo "Znanie," 1959. 47 p. (Vsesoiuznoe obshchestvo po rasprostraneniiu politicheskikh i nauchnykh znanii. Ser.3, Ekonomika, no.36) (MIRA 12:11)
(Hours of labor)

KAPLAN, I.I.; MAKSIMOV, A.L.; GORSHUNOV, M.D., red.; SALYANSKIY, A.A., red.izd-va; UVAROVA, A.F., tekhn.red.

[Establishing the shortened workday for employees of machinery manufacturing enterprises] Opyt perevoda rabochikh i slushashchikh mashinostroitel'nykh predpriiatii na sokrashchennyi rabochii den'. Pod red. M.D.Gorshunova. Moskva, Gos.nauchno-tekhn.izd-vo mashinostroit.lit-ry, 1959. 85 p. (MIRA 12:5)

1. Moscow. Nauchno-issledovatel'skiy institut truda.
(Machinery industry) (Hours of labor)

GORSHUNOV, M.D., otv.red.; PODGORNOVA, V., red.; KAPLAN, I., red.; TROYANOVSKAYA, N., tekhn.red.

[Conversion of enterprises to a seven- and six-hour workday during 1956-1958] Iz opyta perekhoda promyshlennykh predpriiatii na semi- i shestichasovoi rabochii den' v 1956-1958 gg. Moskva, Gos.izd-vo polit.lit-ry, 1959. 145 p. (MIRA 12:3)

1. Moscow. Nauchno-issledovatel'skiy institut truda.
(Hours of labor)

KAPLAN, I.

Study of working time losses caused by labor turnover in the mines of the Donets Basin. Biul.nauch.inform.: trud i zar. plata no.6:25-31 '59. (MIRA 12:9)
(Donets Basin--Coal mines and mining)
(Labor turnover)

KAPLAN, Isaak Isaakovich; BOYKO, A.A., retsenzent; KLINDUKHOV, A.A., retsenzent; NOSIK, Ye.I., retsenzent; KRASNIKOVSKIY, G.V., otv. red.; GOLUBYATNIKOVA, G.S., red. izd-va; MINSKER, L.I., tekhn. red.

[Use of new equipment and techniques in coal mining; basic stages of technological progress in the Donets Basin mines] Vnedrenie novoi tekhniki v ugol'noi promyshlennosti; osnovnye etapy tekhnicheskogo progressa na shakhtakh Donbassa. Moskva, Gos. nauchno-tekhn.izd-vo lit-ry po gornomu delu, 1961. 93 p. (MIRA 15:2)
(Donets Basin--Coal mines and mining)

LAZUTKIN, Ye.S.; RUSANOV, Ye.S.; EYDEL'MAN, R.A.; TRUBNIKOV, S.V.; KAPLAN, I.I.; ZAGORODNIKOV, M.I.; GOL'TSOV, A.N.; TATARINOVA, N.I.; SONIN, M.Ya.; SHISHKIN, N.I., doktor geogr.nauk; ANTOSENKOV, Ye.G.; ZHMYKHOVA, I.I.; KOSYAKOV, P.O.; MATROZOVA, I.I.; ZELENSKIY, G.N.; SEMENKOV, Ya.S.; ZALKIND, A.I., red.; RUSANOV, Ye.S., red.; SHTEYNER, A.V., red.; MIKHAL'CHENKO, N.Z., red.; GERASIMOVA, Ye.S., tekhn. red.

[Manpower of the U.S.S.R.; problems in distribution and utilization] Trudovye resursy SSSR; problemy raspredeleniia i ispol'zovaniia. Pod red. N.I.Shishkina. Moskva, Izd-vo ekon.lit-ry, 1961. 243 p. (MIRA 14:12)

Moscow. Nauchno-issledovatel'skiy institut.
(Manpower)

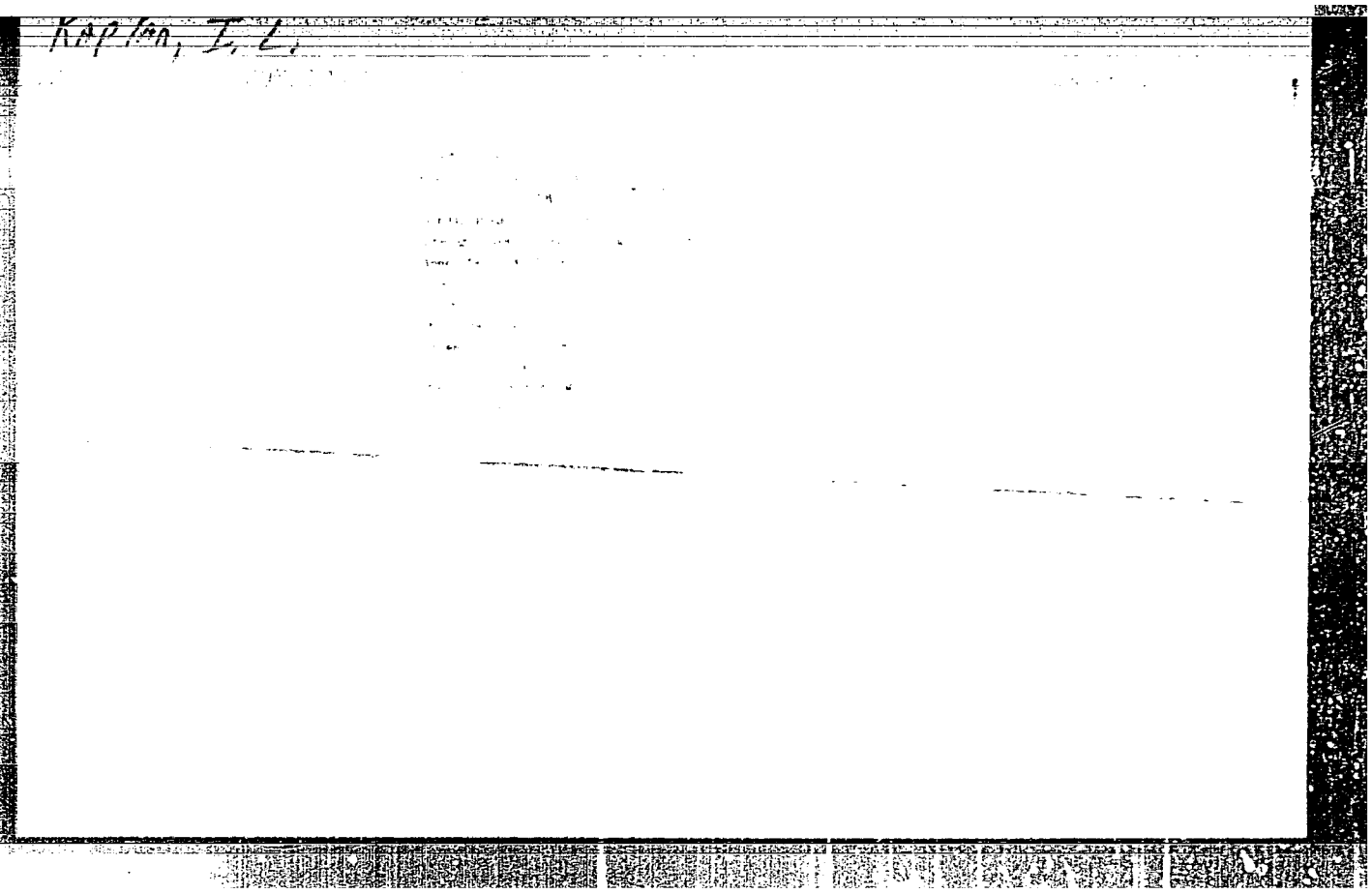
PETROCHENKO, P.F., kand.ekon.nauk; VORONIN, Ye.P.; ROZHKOVA, V.V.; POPKOV, L.V.; PRIGARIN, A.A.; KAPLAN, I.I.; RYSS, V.M.; EKHIN, P.E.; KULAGIN, N.N.; VASIL'YEV, V.F.; LISOV, V.Ye., red.; POMOMAREVA, A.A., tekhn. red.

[Organization of work and establishing work norms in industrial enterprises] Organizatsiia i normirovanie truda na promyshlennykh predpriiatiiakh. Pod obshchei red. P.F.Petrochenko. Moskva, Izd-vo ekon.lit-ry, 1962. 285 p. (MIRA 15:4)

1. Moscow. Nauchno-issledovatel'skiy institut truda.
(Production standards)

KAPLAN, Isaak Isaakovich; KHVOSTOVA, D.M., red.

[What the trade-union activists should do to reduce the turnover of personnel in an enterprise] Profsoiuznomu aktivu - o putiakh sokrashcheniia tekuchesti kadrov na predpriiatii. Moskva, Profizdat, 1964. 95 p.
(MIRA 17:12)



KAPLAN I.L.

62B-2-5/8

AUTHOR: Kaplan, I. L.

TITLE: Heat Exchange During Vulcanisation of Shoes Under Conditions of Forced Gas Currents. (Teploobmen pri vulkanizatsii obuvi v usloviyakh prinuditel'nogo gazovogo potoka).

PERIODICAL: Kauchuk i Rezina, 1958, 17 Nr.2. pp. 23 - 31. (USSR).

ABSTRACT: Experiments were carried out to explain the mechanism of vulcanisation during the heating of shoes in a gas current. Experimental results were partly confirmed by tests under industrial conditions. Recommendations for vulcanisation apparatus in which the process is intensified by using a circulating gas were based on these results. Experimental work was carried out in the plant "Krasnyy treugol'nik" in a special, closed aero-dynamic tube (length 1,200 mm, width 600 m, height 280mm.) Air was circulated under high pressure with the aid of a ventilator and then heated. The air temperature was constant during each experiment. The velocity of the air was measured with a Prandtl tube and a fluid micromanometer at the following rates of the current: 7.38, 6.78, 5.97, 5.23, 3.84, and 2.50 m/second. The temperature of the air was within the limits of 150°- 165°C

Card 1/3

Heat Exchange During Vulcanisation of Shoes Under Conditions of Forced Gas Currents.

and was measured with a potentiometer III . The temperature of the cold junction was measured with a Hg thermometer, calibrated in 0.1°C. The pressure of the water boiling in the calorimeter was measured, and the true temperature of the water in the calorimeter determined (by taking into account the barometric pressure). Fig.1: details of the arrangement of the apparatus. The experiments were carried out when the shoe lasts were in three different positions to the air current: horizontal, vertical and under an angle of 45°C (Fig.2) The effect of the dimensions of the shoe lasts on the value of the coefficient of heat emission was determined in calorimeters; each experiment was repeated three to five times. It was found that the universally adopted formulae for the calculation of convex heat exchange cannot be applied to the calculation vulcanisation apparatus in which the shoes were heated with the aid of a forced gas current. For the calculation of the coefficient of heat emission, from the forced gas current to the shoes at horizontal, vertical and inclined position, when the Reynold's number varies between 2×10^4 to 7.5×10^4, formulae 4, 5 and 6 can be used:

Card 2/3

Heat Exchange During Vulcanisation of Shoes Under Conditions of Forced Gas Currents.

$$\alpha_k = 0.335 \frac{\lambda \cdot W^{0.62}}{\nu^{0.62} \ell^{0.38}} \quad (4)$$

$$\alpha_k = 1.66 \frac{\lambda \cdot W^{0.49}}{\nu^{0.49} \ell^{0.51}} \quad (5)$$

$$\alpha_k = \left(1.43 \cdot \frac{\ell}{h} - 0.29\right) \frac{\lambda \cdot W^{0.55}}{\nu^{0.55} \ell^{0.45}} \quad (6)$$

where α = the coefficient of convex heat emission (kg/ cal/m^2 °C/hrs); λ = the coefficient of thermal conductivity of the air (kg/ cal/m °C/hrs); ν = kinetic friction of air flow in m^2/seconds; W = the velocity of the air current (m/seconds); ℓ = the dimensions of the calorimeter; h = the height of the effective part of the calorimeter. Various calculations of experiments, carried out under industrial conditions, are given. There are 6 Figures, 11 References, all Russian.

ASSOCIATION: Leningrad Plant "Krasnyy treugol'nik". (Leningradskiy zavod "Krasnyy treugol'nik").

1. Vulcanisation-Test results 2. Vulcanization-Equipment 3. Vulcanisation-Mathematical analysis

Card 3/3

AUTHOR: I.L. Kaplan SOV/138-58-12-8/17

TITLE: Intensification of the Process of Vulcanising Rubber Footwear (K voprosu ob intensifikatsii protsessa vulkanizatsii rezinovoy obuvi)

PERIODICAL: Kauchuk i Rezina, 1958, Nr 12, pp 23-27 (USSR)

ABSTRACT: Since rubber mixes used for footwear already contain the maximum quantity of accelerator consistent with production conditions, increase in vulcanizing rate must be obtained by optimum heat transfer at the highest acceptable temperature. Raising vulcanizing temperature from 150° to 180° C will theoretically reduce heating time by 46%. However, owing to the low thermal conductivity of rubber, it may not be possible to use high temperatures where thick sections are concerned. The thermal efficiency of the vulcanizing process is governed by the heat transfer coefficient α_t which is the sum of the coefficient for radiation α_r and that for convection α_λ. The radiation coefficient α_r changes only a small amount with increasing temperature and in any case is small compared with the convection coefficient. The latter can be increased considerably by increasing the speed of

Card 1/5

Intensification of the Process of Vulcanizing Rubber Footwear

circulation. Having established optimum heat transfer coefficients, attention must be directed to the problem of temperature differences between the heating medium and the surfaces of the rubber article; these will govern the maximum temperature at which vulcanization can be conducted for a given length of time. Fourrier and Bio criteria are used to establish the difference between T_c the temperature of the heating medium, and $t_{f\tau}$ the temperature at the exposed surface of the article, and $t_{m\tau}$ the temperature at the back or non-exposed surface of the article for articles S_m thickness heated from one side for given time τ. Steps in the calculation of these temperature differences are shown in the tabulation, for the case where heat transfer coefficient α_c is taken as 15 kcal/m^2.°C.hr and thermal conductivity of the rubber at 0.34 kcal/mm.°C.hr. $t_{m\tau}$ and $t_{f\tau}$ are given for two thicknesses S_m of 6 mm and 2 mm for times τ from 3 minutes to 30 minutes, and for temperatures of heating medium T_c from 150° to 300°C. Graphs are given in Fig 1 of the rubber temperature (°C) against time (hrs)

Card 2/5

for heat transfer coefficients α_c of 15, 30, 90 and 150 kcal/m^2.°C.hr. Full lines are for articles 6 mm thickness and dotted lines for articles 2 mm thickness. Each graph shows curves for temperature of heating medium T_c from 150° to 300°C. Curves indicated with even numbers are for the temperature at the exposed surface, and those with odd numbers are for the back or non-exposed surface. These graphs show: 1) Thin articles (2 mm thickness) have very similar exterior and interior temperatures; 2) With thicker articles, heated from one side only, (6 mm thickness) the difference between the temperature of the exposed side and the back side increases with coefficient of heat transfer α_c and with the temperature of the heating medium T_c. Fig 2 shows the difference in temperatures between the two surfaces of articles 6 mm thick against temperature of heating medium T_c (on the ordinate) for different values of heat transfer coefficient α_c. If it is taken that 12°C is the maximum acceptable value of temperature difference, maximum temperatures T_c of 350° with α_c at 15, and of 160° with α_c

at 150 can be established; 3) When the thick (6 mm) part of an article, such as a sole, reaches an average temperature of 145°C, the thinner (2 mm) part will be at a higher temperature. This difference between thick and thin parts is independent of heat transfer coefficient but becomes considerable at higher temperatures of heating medium T_c. The difference of temperature between thin and thick parts (2 mm and 6 mm thickness) against temperature T_c of the heating medium is plotted in Fig 3. This shows that if the overall temperature difference in the article is to be kept down to 12°C, the temperature of the heating medium must not exceed 160°C. Referring again to Fig 2, it will be seen that the temperature differences between the exposed side and the back of an article heated from one side only will not exceed 12°C if the heat transfer coefficient α_c is not greater than 150 kcal/m^2 °C.hr. In this manner it is established that the maximum suitable temperature of the heating medium (i.e the air subject to forced circulation) should not exceed 160°C, for articles of these particular thicknesses and of

SOV/13[illegible]-58-12-8/17

Intensification of the Process of Vulcanizing Rubber Footwear

rubbers with the given thermal conductivity. In order to secure maximum rate of heat transfer, the coefficient should be brought to a figure as high as possible but not exceeding 150 kcal/m^2.°C.hr. This can be achieved by increasing speed of circulation. The author quotes optimum speeds of circulation at which coefficient α_k will be maximum, as 78 metres/sec at atmospheric pressure, and 13 metres/sec at 6 atmospheres pressure which cross flow, and somewhat lower velocities for longitudinal flow and for flow at 45° to the articles.

There are 3 figures, 1 table and 6 references (Soviet)

ASSOCIATION: Zavod "Krasnyy Treugol'nik" ("Krasnyy Treugol'nik" Plant)

Card 5/5

KAPLAN, I. L.: Master Tech Sci (diss) -- "Investigation of heat exchange in continuous-vulcanization equipment". Leningrad, 1959. 13 pp (Min Higher Educ USSR, Leningrad Order of Labor Red Banner Tech Inst im Leningrad Soviet), 150 copies (KL, No 10, 1959, 125)

KAPLAN, I.L.

Machine for the continuous cutting of rubber parts. Kauch.i rez. 19 no.5:48-50 My '60. (MIRA 13:7)

1. Zavod "Krasnyy treugol'nik".
(Boots and shoes, Rubber)

KAPLAN, I.L.

Modernization of the apparatus for continuous vulcanization of stamped rubber overshoes. Kauch.i rez. 22 no.2:49-50 F '63. (MIRA 16:2)

1. Zavod "Krasnyy treugol'nik".
(Vulcanization—Equipment and supplies)
(Boots and shoes, Rubber)

AUTHORS: Kaplan, I. M., Chizhov, V. A. SOV/72-58-11-7/15

TITLE: Electro-Welding of Flasks for Electron Beam Tubes (Elektrosvarka kolb dlya elektronno-luchevykh trubok)

PERIODICAL: Steklo i keramika, 1958, Nr 11, pp 21 - 25 (USSR)

ABSTRACT: In the Soviet Union the electro-welding of glass has previously assumed little importance. It is known that at lower temperatures glass is a good insulator. In being heated to close to the softening point it becomes noticeably conductive, so that its further heating is possible by alternating current of high frequency or industrial frequency. Table 1 is the result of the investigations on the electrical properties of glass carried out in the MEI, and gives data on the amperage and voltage which are required to produce 100 W. of energy in 1 cm^3 of material at different temperatures. Figures 1 and 2 show the dependence of the electrical conductivity upon the temperature at different frequencies for the glass S-88-13 and the barium-lithium glass Nr. 713, which were used for the production of flasks. The fundamental diagram of the electrical heating of the glass tube edges is represented in figure 3. In table 2 the experi-

Card 1/2

mental results in choosing electrical heating conditions are given. The curves in figure 4 show the dependence of voltage upon the time of electrical heating, and the curves in figure 5 show the dependence of voltage upon amperage. In table 3 the results of the gas and electrical welding of the flasks EPT are compared. Experiments showed that at a temperature of 500-600° the frequency of the current exerted no particular influence upon the effect of the electrical heating. There are 5 figures, 3 tables, and 2 references.